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EDWARD NORTON.

Mr. EDWARD NORTON died April 8, 1894, at his home in Farmington, Conn., aged 70 years, of pneumonia. He was born in Albany, N. Y., in 1823, his father being John Treadwell Norton, of honored memory. After graduating from Yale, in 1844, he traveled in Europe, and spent several Winters in the South to ward off threatened disease of the lungs. Agriculture became to him a fine art, to which he devoted a singularly intelligent and well-trained mind. He became interested in fine grades of cattle, and was widely known for his enterprise and skill in this department of farming industry. For many years, and until the time of his death, he was secretary of the American Guernsey Cattle Club, and in this capacity was well known in different parts of the country, and was an acknowledged authority regarding this valuable kind of imported stock.

Mr. NORTON was a highly intelligent man; his mind was broad and well balanced, and he loved the study of natural history. A friend, in a letter, says: "Mr. Norton was a public-spirited man, cordially interested in everything that promised to be of advantage to the community in which he lived; he was a man of sterling

integrity, just and true in all his business relations, ever ready to do all in his power to promote the welfare and happiness of his fellows, not only in larger matters, but pre-eminently in little things—the unobstrusive things that make up so much of life; he was friendly, social and genial; though engaged in a large business he always found leisure for his friends; he was a Christian gentleman, sincere, openhearted as the sunshine, and those who knew him intimately and for years in the home and in business, will bear witness to his unvarying purity, uprightness and kindness."

Mr. NORTON'S favorite branch of natural science was Entomology, and his specialty Phytophagous Hymenoptera, although he was well versed in all the families of the order. Of late years his business pursuits prevented him from engaging actively in the study, but the work done was well done, and has proved of great value and assistance to the student, notably his admirable and exhaustive monograph of the Saw-flies of North America published in 1867–69, which alone has earned for him an honored name among entomologists and made him an authority in that family of Hymenoptera.

Mr. NORTON has named and described upwards of 250 species of Hymenoptera, new to science, in his several publications, among which are the following:

On the Hymenoptera of the genus *Allantus* in the United States, Bost. Jour. Nat. Hist. vii, 236–260 (1860).

Catalogue of several genera of the Tenthredinidæ in the United States, Proc. Bost. Soc. Nat. Hist. viii, 150–161 (1861).

Notice of the genus *Selandria;* Descriptions of several of Harris' named Tenthredinidæ, Proc. Bost. Soc. Nat. Hist. viii, 219–224 (1861).

Catalogue of American species of *Tenthredo* as arranged by Hartig, Proc. Bost. Soc. Nat. Hist. ix, 116–122 (1862).

On the synonyms of *Cimbex americana*, Proc. Ent. Soc. Phil. i, 201 (1862).

Notice of several new species of Tenthredinidæ, Proc. Ent. Soc. Phil. i, 143 (1862).

A description of several new Hymenoptera, Proc. Ent. Soc. Phil. i, 198–200 (1862).

Catalogue of our species of *Ophion*, *Anomalon* and *Campoplex*, Proc. Ent. Soc. Phil. i, 357–368 (1863).

Notes on Tenthredinidæ, with descriptions of new species, Proc. Ent. Soc. Phil. iii, 5–16 (1864).

Catalogue of the described Tenthredinidæ and Uroceridæ of North America, Trans. Am. Ent. Soc. i, 31, 193; ii, 211, 321 (1867–69).

Notes on Mexican Ants, Am. Ent. ii, 57–72; descriptions of same, Comm. Proc. Essex Inst. vi, 1–10, figs. (1868).

Notes on North American Tenthredinidæ, with descriptions of new species, Trans. Am. Ent. Soc. iv, 77–86 (1872).

Report upon the collection of Formicidæ made in portions of Nevada, Utah, Colorado, New Mexico and Arizona, during the years 1872–74, Rep. Wheeler Expl. v, Zool. 729–736 (1875).

On the Chrysides of North America, Trans. Am. Ent. Soc. vii, 233–242 (1879).

At the time of his death Mr. NORTON was a corresponding member of the American Entomological Society, and also a member of several other scientific bodies at home and abroad.

NOTE.—The portrait of Mr. NORTON, published in this number of the NEWS, is from an amateur photograph (the only one obtainable) taken shortly before his death, and kindly sent to us by his brother, Col. Charles L. Norton, of New York City.

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MICHIGAN ARANEÆ.

By C. F. BAKER, Fort Collins, Col.

A large part of the species recorded in the following list were collected by myself at Agricultural College, Michigan. All available records from other sources are also added, as follows: (1) specimens collected at the above locality by Mr. V. H. Lowe; (2) records sent me by Mr. Nathan Banks; (3) one record in Marx's Cat. Araneæ.

The species, with one exception (that mentioned by Marx), were determined by Mr. Banks, who also revised the list, and added the synonymical notes.

Fam. DRASSIDÆ.

Prosthesima ecclesiastica Hentz.

Fam. DICTYNIDÆ.

Dictyna volucripes Keys. *Dictyna volupis* Keys.

Amaurobius bennetti Blackw. (*sylvestris* Em.)

Fam. CLUBIONIDÆ.

Clubiona americana Bks. (*ornata* Em.) *Clubiona obesa* Hentz [Marx.]

Fam. AGALENIDÆ.

Agalena nævia Bosc. [Banks.] *Cicurina arcuata* Keys.

Fam. THERIDIDÆ.

Theridium tepidariorum Koch. *Theridium spiralis* Em. [Banks.]
Steatoda borealis Hentz. *Lathrodectus mactans* Fab.
Stemonyphantes bucculentus Clerk. *Linyphia marginata* Koch.
Lophocarenum florens Cambr.

Fam. EPEIRIDÆ.

Agriope riparia Em. *Epeira displicata* Hentz.
Epeira gibberosa Hentz. *Epeira patagiata* Clerck.
Epeira insularis Hentz [Lowe]. *Epeira strix* Hentz [Lowe].

Fam. TETRAGNATHIDÆ.

Tetragnatha extensa Linn. *Tetragnatha laboriosa* Hentz.
Eucta straminea Em. [Banks].

Fam. THOMISIDÆ.

Misumena vatia Clerk [Lowe]. *Misumena georgina* Keys [Loew].
Xysticus gulosus Keys. *Coriachne versicolor* Keys.
Runcinia aleatoria Hentz. *Ebo latithorax* Keys [Banks].
Tibellus oblongus Walck. *Philodromus alaskensis* Keys (?).

Fam. LYCOSIDÆ.

Ocyale undata Hentz. *Dolomedes sexpunctatus* Hentz.

Fam. ATTIDÆ.

Phidippus tripunctatus Hentz. *Dendryphantes octavus* Hentz.
Ergane borealis Blackw. (*Hasarius hoyi* Peck.)
Astia vittata Hentz. *Epiblemum scenicum* Clerk.
Icius mitratus Hentz [Lowe]. *Philæus militarsis* Hentz [Lowe].
Habrocestum decorum Blackw. (*splendens* Peck.) [Lowe].

Summary : genera, 33; species, 41.

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COLLECTING IN UTAH.—Part II.

By Arthur J. Snyder.

All a-board ! Yes, so our seats seemed and certainly the accommodations were not the best in the world. But who cares for uncomfortable seats and jolting cars when the trip is uphill from an elevation of 4260 feet to one of 7000 feet in a distance of thirty-two miles, and all the journey through indescribably beautiful scenery ?

Much of the road from Salt Lake City to Park City, Utah, is beside a beautiful dashing mountain stream. On that June evening we passed many of the disciples of Isaac Walton, and not seldom glimpses of the speckled beauties testified as to the success of the anglers.

Up, Up, Up! Pulled on our way for a time, then our complaining engine becoming weary, changed positions and pushed. Finally, side-tracked, we were given an opportunity to rest and take a longer look at the mountains while awaiting a down train.

From the overhanging bank was a bush of the snowberry just in the height of its beauty and covered with beautiful pink blossoms, while on the other side an open space was thickly dotted with the purple blossoms of *Pentstemon*.

Bird-life was not abundant in this part of Utah, but a dove flying across an open valley, seemed to carry my thoughts as it passed to home and scenes more familiar. A dozen species would easily cover all the birds I noted in the vicinity of Park City. The fat grouud squirrels (*Spermophilus arivatus*) startled by the train would hasten to a safe distance and watch our passage with interest, while a tiny chipmunk would occasionally be seen hastening, as for life, to the shelter of some rock, but nearly always stopping to look back and utter its sharp chirp of protest against pursuit.

At 7 o'clock P.M. we were in Park City, a town with one street on a level and all the rest either up or downhill, mostly up, surrounded by mountains on all sides but one, and there a narrow opening to the east. Great snow banks still lingered on the mountains and Winter's icy breath was plainly felt after sunset. The next day, June 24th, dawned bright and clear. After a glorious night's rest in the mountain atmosphere one was fully ready to note the beauties of the insect world and realize what a pleasant thing it is to live.

"Going a fishing, Mister?" was the first question. "You won't catch many trout there," was the next salutation as I was following the course of an irrigation stream and making numerous sweeps with my net for the butterflies on blossoms near the bank. "Catching grasshoppers for bait"? was the third, and so on, but I couldn't stop to explain and satisfy the curiosity of all, and it's my impression that many of the people remember me and always will as an easterner who "wasn't quite right." The young westerner is not less quick to see a bargain or to make money, however, than the youth of older States, and not infrequent were the calls made at my boarding house by boys with fruit cans full of live butterflies which they wished to sell to the collector. "Say, mister, here's a fine one"! some young naturalist would

say, as a rare species with probably two-thirds or one-half of its wings remaining was handed to me. All collectors know the story and, I am sure, feel, as I did, with what good intents these offers were made.

During my stay at Park City four localities were found to be especially abundant in butterflies. The first was a slightly elevated level pasture which was irrigated weekly and abounded in *Cœnonymphas*, *Lycænas*, *Argynnids*, *Melitæas* and one species of *Satyrus*. Here also I found a few *Chrysophanus*, *Pamphilas*, *Limenitis*, *Pyrgus*, *tessellata* and a few *Noctuids*. A large patch of *Mertensia* grew at one side of this field, and here were taken *Melamorphia ononis* and *Argynnis epithore* var. *kreimhild*. Numerous other flowers were abundant along the edges of this field, such as *Aconitum columbianum*, *Aquilegia cærulea*, *Potentila gracilis*, *Achillea millefolium*, *Echinospermum floribundum*, *Mentha canadensis* and *cnicus*. The last species named proved more attractive than anything discovered for *Argynnis leto* and *Pamphila manitoba*. Along the edges of the water, in lower land, were clumps of willow, the resort of *Limenitis weidemeyerii*. In the water were *Verona americana*, a blue-grass flower, and *Mimulus luteus*.

The second locality extended from this first along the edges and to the tops of some high mountains to the southeast, where *Parnassus smintheus* and *Chionobas chryxus* were abundant. Near the base of one of these mountains was a delightful spring where many insects congregated. *Melitæa gabbi*, several *Lycænas*, *Pamphila agricola*, *Limenitis weidemeyerii* and a *Pholisora* (possibly new).

A trail leading to the top of one of these high mountains was the highway of several species of butterflies, but especially of *Papilio daunus*. These great beauties were continually passing up and down the mountain. Taking a position beside the trail one day several were taken, but nearly all were broken either by the stroke of the net or before the strong wings could be silenced in the cyanide jar. Twice I succeeded in seeing the *daunus* oviposit on the leaves of *Prunus virginiana*. On the first occasion one fertile egg was secured and the second time three. In no case did I find more than two eggs on the same leaf. Later in the season two larvæ, supposed to be *daunus*, were found on a poplar tree near my window. These are worthy a more extended description, and I hope to

write up their life-history later. They fed heartily and were beauties from the first. Their appearance was so neat and trim and the coloration and shape such that even a hater of "worms" could but admire these. When ready to start home neither had pupated, but the trip was made in a jelly glass and both retained their appetites on reaching Illinois. The first pupated August 28th, and the second September 8th. The first chrysalis is 1⅝ in. long, in every way resembling *P. asterias*, color gray, with dark band along each side. I regret that I cannot give the time from egg to pupa, but both were found in the larvæ state, the first on July 25th. Female *daunus* confined with poplar and chokecherry leaves failed to oviposit even after repeated trials. Along the trail previously mentioned *Anthocharis ausonides* and *stella* were quite frequently seen, but were always wary.

On an open table-land covered with dwarf poplars and a wild gooseberry; *Grapta zephynis* and *Nemeophila petrosa*, were found, but only three of the former and one of the latter. *Clisiocampa californica* was an abundant species and very destructive to the native vegetation. On June 29th, I picked at least a pint of the cocoons from the chokecherry bushes in about ten minutes. On the tops of the mountains were found *P. smintheus* and *C. chryxus* in abundance, a few *Papilio zolicaon*, *Pieris occidentalis*, *Melitæa nubigera*, *Nisoniades lucillus*, and a *Papilio* resembling *ajax* in general appearance, but larger.

The plants on and near the tops of the mountains were of two species, *Ledum debile* and *wrightii*. These moss-like plants, growing on the rocky hill-sides, where nothing else could obtain a foothold in the barren soil, were often eaten close to the ground by the larvæ of *Parnassius smintheus*. Frequent and continued search and digging revealed a very few larvæ and three empty pupæ cases. This led me to think that I searched in the wrong season. A female *smintheus* confined with a transplanted plant of *Ledum* oviposited two eggs which proved to be not fertile.

On June 30th, a trip was made six miles to the south and three notes concerning it seem worthy of mention. Near the bare top of a high mountain, probably 9000 feet elevation, a perfect swarm of *Melicleptria villosa* was discovered. On the level rocky top *C. chryxus* was abundant, and could be easily taken by working against the wind. About noon while sitting down to put some of my captures in papers, hundreds of *Coccinella* passed me

going with the wind. It was a new experience, and never before or since have I seen this insect so numerous. On two occasions while ascending the mountains from another view, large numbers of *Cantharis nuttallii* were seen moving with the wind and taking short flights from plant to plant.

Returning from the trip mentioned large patches of *Mertensia* were found, and by watching these flowers eight *Hemaris bruceii* were taken. Several were seen on other days, but always about the *Mertensia.*

The third locality was north from Park City, and was a valley between two mountains with a branch running east. Here, and on the level top of one of the side mountains, were found *Argynnis egleis, cornis* and *meadii; Lycænas heteronea, acmon* and *sæpiolus; Thecla crysalus, californica* var. and *behrii, Satyrus charon, Chrysophanus rubidus* and *Pseudohazis eglanterina* var. *nuttallii,* (I call this species *nuttallii* on good authority, but have had three different names for the variety) The typical *eglanterina* was seen through July and early August, and four specimens were taken. This *form* of *eglanterina* appeared later and was abundant up to the time of leaving, August 19th. A few of another variety (a white form) were caught, but through a mistake every specimen was sent to other parties and I have not had a name for it.

The fourth location was the valley southwest of the city which contained several large meadows partly under water with a stream running through and numerous clumps of willows. Here *Argynnis eurynome* (two forms) *A. leto, myrina; Lycænas* of several species, two *Pamphilas, Colias hagenii, Vanessa milbertii* and a few others were found.

A few Coleoptera were taken, but at present cannot give names of them. The beautiful *Odonata* were common, and a few species were taken, one of which proves to be a new species. Mr. Calvert had a description of the male in manuscript, but had not seen the female. It was my intention to give at the close a list of species taken, but I feel that already I have used too much of the valuable space in the NEWS, and yet have not been able to tell half. I can only wish that my entomological friends might all have as enjoyable an excursion and try collecting in the West.

THIS number contains fourty-four pages.

THE BOLD ROBBER FLY AND THE MANTIS.

By W. A. HARSHBARGER, Topeka, Kans.

The article in the April number of NEWS on "The Bold Robber Fly" recalls a battle that I witnessed last September between one of the larger species of *Asilus* and a female *Mantis* (*Stagmomantis carolina*). The fight occurred on a small tree in my yard near which I happened to be standing. The fly darted into the tree and instantly set up a great buzzing that attracted my attention. The *Mantis* caught the fly around the thorax with one of her fore legs or graspers, and a regular sparring match ensued, in which the fly seemed to use its feet to push the *Mantis* off. The long body and legs of the *Mantis* gave it great advantage in avoiding the proboscis of the fly, but when it attempted to eat any part of the fly the latter would prod it, so that it had to give up. Finally, the other grasper was thrown about the fly in such a way as to pinion one wing. The *Mantis* then slipped one grasper down to the neck of the fly, and while in this position ate off its proboscis. She next turned her attention to the legs, which were removed one by one. At this point I interfered, captured the *Mantis*, and meant to put the fly out of misery, but it flew away from me minus a proboscis and four legs. The *Mantis* was placed under a glass and fed thirteen house flies in succession. This occurred at noon. At night a male *Mantis* was placed under the same glass and in the morning his wings and legs alone remained. After this slight repast the *Mantis* was allowed to fast a day and a half, when a large female *Acridium americanum* was placed under the glass. At once a battle began. The grasshopper was so strong and heavy that the fight seemed uneven. It succeeded in kicking and scraping the *Mantis* loose from every hold that it got. Finally, the *Mantis* seized one of the hopping legs and began to eat it off about the middle of the femur. The grasshopper beat itself and the *Mantis* violently against the glass, but the latter hung on until it gnawed the leg off, when it loosed it hold, fell onto its back and expired. Whether the violent exertions of the grasshopper killed it or I starved it to death, I cannot say.

To prove that the clothes he sells are all wool, a Ridge Avenue dealer shows customers the moths in the garments.

ON THE PARASITES OF WILD BEES IN CALIFORNIA.

By A. DAVIDSON, M. D., Los Angeles, Cal.

In ENTOMOLOGICAL NEWS for May, 1893, I recorded the parasites I had found affecting the Carpenter bee, *Xylocopa orpifex*, and in the further investigation of parasitic life among the Hymenoptera I have bred some insects the record of which may be of some interest:

Photopsis unicolor Cress. Four specimens of this species were bred from cells of the following bees:

No. 1, from cell of *Anthidium emarginatum*; found in September, 1892; adult issued July 20, 1893.

No. 2, from a cell of *Anthophora* sp.? dug from a soft rock in September, 1892; hatched July 20th, 1893.

No. 3, from cell of the same species; hatched in August, 1893.

No. 4, from cell of *Anthidium emarginatum*? occupying a hole in the ground; found in October, 1892; hatched Nov. 5, 1893.

In one instance no cocoon seems to have been formed; those of the others closely resembled cocoons of the *Anthophora* they infested. The larvæ of the bees had been entirely consumed.

Argyramœba œdipus, Fabr. From the cell of a small bee found six inches deep in adobe soil this bee-fly appeared on July 29. The parasite had evidently attacked the larva after the latter had spun its cocoon; and while in the pupa stage had, after the manner of its tribe, wriggled itself through the cocoon and then transformed.

Leucopsis sp.? Three of these Chalcids were hatched from the lower cells of a series of about a dozen of a species of *Anthidium* in August. The bee cells occupied about nine inches of the hollow stem of an *Audibertia polystachya* and when found in the previous month contained only the three parasites, the bees and some other parasites having already escaped. The parasites formed no cocoon and the remains of the nearly full grown bee-larvæ were easily recognised among the débris.

One of the most common Bumble bees of this section is the handsome yellow-coated *Bombus fervidus* Fabr. Whether its describer named this insect from the warmth of color in its coat, or for reasons associated with a more intimate acquaintance with its habits I cannot say, but at all events the name suggests the character of the receptions the innocent seeker after truth is likely to experience. These insects are especially numerous along the

sea-coasts, their nest of withered grass and weeds being easily discovered in the rush-like vegetation that clothes the sandy wastes.

I examined a few of their nests and was somewhat surprised by the excessive number of some of the parasites found therein. The most abundant species was a Tachina-fly, *Brachycoma davidsoni* n. sp. Coquillett (see the appended description), of which there were literally hundreds. The larvæ, about half an inch long when full grown, is very active and voracious. The eggs are originally deposited on the larvæ of the bee, which the Tachinid larvæ, after hatching soon consume, and, wandering around, attack other larvæ or penetrate the pupa-cells and devour their contents. I placed some of the *Brachycoma* larvæ in a glazed pasteboard box about half a line in thickness, and the next day found that a number of them had penetrated the sides and made their exit; so the ordinary bee-cocoon is not likely to seriously impede their progress. In a few instances at least the eggs seem to be deposited within the pupa-case, as I have found as many as twelve of the parasites in one cell and with no evidence of a point of entrance; nor did it seem possible that such tiny larvæ, apparently but a few day's old, could penetrate the tough cocoon. Before pupating the larvæ eats its way through the cocoon and, hiding among the débris near the ground soon transform. Of these parasites but few were observed before the first of September, when the approach of Winter probably lessened the activity of the bees. During the latter part of this month and throughout the remainder of the season some of the nests fairly swarmed with them. The majority of the pupæ hatched out in 17 or 18 days after transforming; those remaining are, now March, beginning to produce the perfect flies.

Ephestia kuehniella Zeller. The Mediterranean flour moth larvæ are found along with those of the *Brachycoma*, and in the majority of instances are quite as abundant. I have not observed them attack the larvæ of the bee and presume that they live on the bee-food, since late in the Autumn, when the bees have forsaken their nests, they are more numerous than at any other time. Of those found at this season some hatch out in the Autumn, but the greater number remain in the larva state until the following Spring.

What the larvæ of the flour moth feeds on in other countries, or whether their presence in the nests of the bumble bee is here

unusual I have no means of knowing, but if it proves on investigation that their normal habitat in this State is the nest of the wild bee it would certainly tend to support the belief that they are indigenous. Two years ago one of the mills of this city was reported to be infested by this moth, but as my investigations do not extend beyond that date I am unable to state whether or not they existed prior to that time.

Mesostenus thoracicus Cresson. Two specimens of this species were bred from larvæ found in the nest of *Bombus fervidus*.

Sarcomacronycha tripoxylonis Towns. Six of these Tachinids were bred from the cells of *Sphex elegans*, having probably fed on the tree crickets, *Œecanthus niveus*, with which the cells were stored.

Brachycoma davidsoni n. sp. Coquillett.—Proboscis horny and rather slender, labellæ small, facial ridges bristly on less than their lower fourth, third antennal joint one and two-thirds times as long as the second.

♂.—Head yellowish white, occiput grayish black, frontal vitta deep brown, at middle equal to one-third width of front, no orbital bristles, frontal bristles in a single row, extending to base of second antennal joint, sides of face bare, except for a row of bristles that extend to the cheeks; palpi black, only slightly thickened at the tips; antennæ black, three-fourths as long as the face, arista thickened on its basal two-fifths, the penultimate joint broader than long; eyes naked, not extending as low as the vibrissæ; cheeks one-half as wide as height of eyes. Thorax, scutellum and abdomen black, apex of the fourth segment broadly and the genitalia, yellowish; thorax opaque, gray pollinose, marked with three median and two broad lateral black vittæ. Scutellum gray pollinose, bearing a dorsal and three marginal pairs of macrochætæ. Abdomen opaque, gray pollinose, but changing to blackish in different lights, first segment bearing two lateral macrochætæ each side, second segment with two sometimes scarcely perceptible dorso-marginal and four lateral macrochætæ, third segment with a marginal row of twelve, the fourth with a similiar row of fourteen macrochætæ. Legs black, tibiæ bearing scattered bristles, claws and pulvilli very elongate. Wings hyaline, posterior cross-vein sinuate, at last fourth of distance between small cross-vein and the bend, the latter rectangular, beyond it the fourth vein is very convex inwardly; third vein bristly halfway to small cross-vein. Calypteræ pure white, knob of halteres yellowish.

♀.—Ground color of head blackish, frontal vitta only one-fourth width of front, three or four orbital bristles each side, sides of face bearing short bristles outside of the regular row of strong bristles, palpi greatly dilated at the apex, claws and pulvilli rather short, otherwise as in the ♂.

Los Angeles County, California. Eight males and eleven females, bred by Dr. A. Davidson from larvæ found feeding upon those of *Bombus fervidus*.

ON THE HABITS OF SOME ASILIDÆ.

By T. D. A. COCKERELL.

The article in the April NEWS, on the "Bold Robber Fly," induces me to send you the following notes on Asilidæ which were prepared for one of our N. Mex. Station Bulletins, but crowded out in publication. All the observations recorded were made between Las Cruces and the Agricultural College, in the Mesilla Valley, New Mexico, altitude 3800 feet.

I am indebted to Messrs. Coquillett and Johnson for the identification of the flies, and to Mr. Fox for reporting on the Hymenoptera mentioned.

Erax dubius Will.
Erax cinerascens Bell.

These two flies belong to the family Asilidæ, the species of which are recognized by their long tapering bodies and usually large size. Flies of this family prey on other insects, and are often to be accounted useful, but unfortunately they also prey on one another. Both the above species were taken from the clutches of other Asilids: *Erax dubius* from a large kind known as *Proctacanthus philadelphicus*, the other from a kind not identified. This was on July 28th.

Mallophora fautrix O.-S.

A fly over half an inch in length, with brown wings, face with a yellow beard, scutellum and abdomen above yellow, thorax and legs black. On July 28th one was taken, which, like the last two species, had been caught and killed by a large Asilid. On August 5th, however, I found one which had itself caught a wasp (*Odynerus* sp. near *propinquus*).

Thus it appears that a fly, which is able to capture and kill wasps, is nevertheless itself liable to be killed by another fly. This quite reverses one's natural idea that a wasp, with its sting and hard body, would be superior to any fly.

On July 28th another *Mallophora* (which Mr. Johnson says is a new species, unless described from Mexico) was caught with a honey bee in its clutches.

Proctacanthus philadelphicus Macq.

A large Asilid fly over an inch and a quarter long. As related above, one was found preying on *Erax*. On July 28th I also

took one which had caught a butterfly, *Synchlœ lacinia* var. *crocale*. The butterfly is the parent of those spiny caterpillars which so abound on sunflowers about Las Cruces.

Proctacanthus milbertii Macq.

A large fly like the last. On August 14th one was found which had captured a wasp (*Bembex* sp.). Dr. Riley has recorded this species as an enemy of the honey bee.

Promachus princeps Will.

Another Asilid fly which Mr. Johnson says was only known hitherto from the State of Washington. One was found at Las Cruces on July 8th, it had captured a wasp (*Odynerus annulatus*).

COLLECTING IN PROSPECT PARK, BROOKLYN, L. I.

By H. G. WHITE.

Living close to this beautiful park I have been there almost every day for the past two years in search of specimens of Lepidoptera for my collection. I have searched almost every nook and corner, and have been well rewarded for my trouble. Although being situated within a large city, there are more things to be taken there than many collectors may think, and from my own observations few collectors seem to care to visit it, for within the two years I have only seen three others besides myself. It may interest some of the NEWS readers to know what is to be found within its grounds. Upon February 28th of this year I found some *Vanessa antiopa* flying in the woods where they had been hibernating this Winter. March 3d I took some *Pieris rapæ;* April 12th, two *Grapta comma;* May 1st took the first *Colias philodice;* May 6th, one *Papilio turnus*, which is early for this locality; May 7th one *Eudamus tityrus*. The *Zeuzera pyrina* or *æsculi* is doing its awful work within the park, and all over our cities of New York and Brooklyn. Every tree within the park is attacked with it, except the resinous ones. It seems to me a great pity that our government does not take hold of this matter, for it is a most serious one indeed. Then again, there is a field for an entomologist in Prospect Park; as in Central Park, New York; some of the most beautiful trees within its limits are ruined completely. Last season I managed to take good specimens of the following:

Vanessa antiopa
" milberti
" atalanta
" huntera
" cardui
Grapta comma
" progne
" j-album
Limenitis ursula
" disippus
" arthemis
Junonia cœnia
Argynnis idalia
" cybele
" myrina
" bellona
Danais archippus
Melitæa phæton
" harrisii
Thecla halesus
" favonius
" edwardsii
" smilacis
" niphon
Lycæna pseudargiolus
" comyntas
Papilio turnus
" philenor
" asterias
" troilus
" cresphontes
Callidryas eubule
Colias eurytheme
Colias philodice
Pieris rapæ
" protodice
" oleracea
Eudamus tityrus
" cellus
" proteus
Pamphila zabulon
" leonardus
" peckius
Hemaris thysbe
Thyreus abbotii
Amphion nessus
Deilephila lineata
" gallii
Chærocampa tersa
Philampelus pandorus
" achemon
Protoparce celeus
" carolina
" rustica
" cingulata
Sphinx gordius
" chersis
" luscitiosa
Smerinthus geminatus
Paonias excæcatus
" myops
" astylus
Cressonia juglandis
Sesia acerni
" albicornis
Utetheisa bella
Arctia nais
" virgo
Pyrrharctia isabella
Spilosoma virginica
Attacus cecropia
" promethea
" angulifera
Telea polyphemus
Samia cynthia
Actias luna
Hyperchiria io
Citheronia regalis
Eacles imperialis
Dryocampa rubicunda
Clisiocampa americana
" disstria
Cossus robiniæ
" querciperda
Zeuzera pyrina or æsculi
Ennomos subsignaria
Agrotis baja
" bicarnea
" c-nigrum
" lubricans
Plusia ærea
" formosa
" simplex
Catocala insolabilis
" residua
" nebulosa
" ilia
" cerogama

AN EARLY SPRING TRIP.

By CHAS. R. BOERNER, Philadelphia, Pa.

On March 18th, I made a collecting trip to Clementon, Camden County N. J., it being the first warm day of the year. Insects were scarce as yet, but I managed to make the following captures. It was my intention to collect water beetles, but the water was too cold, as only eight specimens were seen in about an hour's time. *Cicindela purpurea*, *vulgaris* and *repanda* were plentiful, but of *purpurea* I only caught two specimens. *Tachys xanthopus* and *T. flavicauda* were common, the former running along the

banks of the lake, and the latter was found under the pine-bark. *Agonoderus pallipes* and *Bradycellus rupestris* were found flying in abundance. I was in hopes of securing more water beetles, but had to be satisfied with six specimens of *Cnemidotus edentulus*, two specimens of *Cœlambus dissimilus*, also a specimen of *C. nubilis*? two specimens of *Hydroporus obscurus*, five specimens of *Gyrinus analis*, a specimen of *G. borealis*, *Dineutes assimilis* and *Helophorus lacustris*, two specimens each. During my day's wanderings, I came across the dead body of a dog, which proved a harvest. I judge (by its odor) it had been lying there about three weeks. Of *Silpha inequalæ* and *S. noveboracensis* there were two specimens each; *Creophilus villosus* two specimens. *Aleochara lata* was very common, in fact they seemed to own the carcass. *Oxytelus sculptus*, four specimens; a species of *Lathrobium*, also a species of *Staphylind* undetermined. *Omosita colon*, *Nitidula ziczac*, *N. rufipes*, and *Aphodius inquinatus*, were all common. I found on the body two specimens of *Onthophagus tuberculifrons*. This species was really abundant, but at a hasty glance I took it for *O. pennsylvanicus*. On showing it to Mr. Wenzel he determined it as *tuberculifrons*. He was surprised at its being found in this locality. In Prof. J. B. Smith's list of "Insects found in New Jersey," Dr. Hamilton reports that he found it on Brigantine Beach. In the droppings of a horse *Aphodius inquinatus* was found plentifully, while *Geotrupes egeriei* was found in one specimen. Under the pine-bark I found specimens of *Elater xanthomus*. This is recorded in the New Jersey list as one of the rarest *Elaters* found in this county. *Rhagium lineata* was very common; one peculiarity about the specimens found was that they were completely covered with a parasite. *Cossonus concinnus* was also common, but most of the specimens were dead, and fell apart on handling. A specimen of *Coxelus guttulatus* and a species of *Litargus* were also found in the stump of an old tree.

NOTES ON THE SPHINGES OF MISSOURI.

By R. R. Rowley, Louisiana, Mo.

Daremma undulosa.

On the 30th of August, 1886, eight larvæ of this species were collected by Mr. Ralph Sweet and the author from ash bushes near Curryville, Mo. These were all well grown when found and

were from three to three and a half inches in length and most of them of a light whitish or yellowish green above and darker green below. Head dark green, with a lateral pink or flesh-colored stripe, obcordate, but slightly bilobed at the apex or top. Feet and caudal horn in the majority of the specimens pink or flesh color. In others the horn is green in front with a flesh-colored lateral stripe. Spiracles vermilion, with a white or yellow central slit. The whole body, except the caudal shield and side plates, smooth (to the eye). Caudal horn with a yellowish green tip and covered with pink and green granules. The seven lateral, oblique bands yellow, with a dark green shade line above, the first six crossing one whole segment and a half of the next. The seventh band is the broadest and brightest and extends to the base of the caudal horn. Caudal shield and plates with black granules.

One larva was a beautiful brown in color, the shade on the upperside of the bands becoming a deep reddish brown with greenish yellow patches below the bands. Caudal horn and feet bright pink; an indistinct green shade on the upperside of the horn which is long, strong and but little curved in all of the specimens.

The larva of *undulosa* changes to a watery purple or red before burrowing to pupate. Pupa from 1½ to 1¾ inches long, dark brown (almost black). Tongue case not apparent. The pupa is shaped much like that of *Ceratomia amyntor*.

From the eight pupæ obtained from the larvæ of 1886 but three imagoes emerged in 1887.

On the 25th of August, 1887, we collected twenty larvæ on ash. They were fed in muslin bags on ash and lilac to maturity. The half grown larvæ were a beautiful bright yellowish green above, dark green or bluish green from the spiracles down, except the underside of the third and fourth segments, which were yellowish green and similarly colored above.

One larva, 1½ inches long, was bluish green, with first, second and seventh bands whitish; the others green. Stripes on the head yellow. Spiracles vermilion, with a yellow dot above and below.

One full grown larva was of a light reddish brown (almost wine color); eight or nine were pale bluish green; the rest light yellowish green. Head reddish or wine color, with a paler lateral

stripe; underside of the body bluish green in the yellow green larvæ. Caudal horn pink, with a yellowish end terminated by a black tip. The seven sphingial bands bright yellow and rather broad on the yellow-green larvæ, whitish on the blue-green "worms." Spiracles brick-red with a surrounding ring of pale red. The bands are shaded above by dark green and also by an oblong, triangular pink patch on the yellow-green specimens; eight creases to each body ring. Some of the larvæ began to burrow on the day of capture, and pupated in five or six days. The burrow is several inches in depth.

Hemaris diffinis.

I have collected the larvæ of this species on feverwort in June, and later in the Summer on buckberry and snowberry. The mature "worm" is nearly two inches long; side of body light yellowish green with yellow granules; top of the body bluish green with white granules; underside of the body dirty brown. Top of second segment set with strong tooth-like yellow granules surrounding the head not unlike a yellow collar. Head blue-green; feet banded with black and dirty white. Spiracles black, set in an oval bluish spot with a white dot above and below (the spiracle). Caudal horn slender, almost straight, black and heavily granular, yellow at the side of the base. Young larva whitish, with black horn and a very distinct yellow "collar." Larva does not burrow, but spins a thin cocoon inside of leaves. Pupa almost black.

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ON A COLLECTION OF NEUROPTEROID INSECTS FROM KANSAS.

By Nathan Banks.

Mr. W. A. Snow, of the University of Kansas, has kindly sent me for determination the collection of these insects in that institution. Although the collection is small, yet it adds materially to our knowledge of the distribution of these interesting insects, as hardly any species were previously known from the State.

PERLIDÆ.

Pteronarcys nobilis Hag., 1 ♂.—This differs somewhat from Hagen's description of his New York specimen, but resembles more his Tennessee specimen. The basal border of the antennæ is narrow and without a process above. The angles of the prothorax sharp, the

sides slightly concave; the knees are black; the venter orange in the middle; veins of wings somewhat clouded, especially near base; the ninth ventral segment black, except tip, which is yellowish, deeply notched; the appendages of the last dorsal segment are brown and their superior margins slightly concave. Length 27 mm.

Acroneuria sp., 1 ♀.—Estes Park, Col. Probably a form of the common *abnormis*.

Pseudoperla occipitalis Pict., 1 ♀.

Perla lurida Hag., 2 ♀, 1 ♂.—The appendages of the last dorsal segment of the ♂ are slender, narrowed at the tip and sharp pointed.

Perla zanthenes Newm., 1 ♀, 1 ♂.—The ♂ appendages are much broader and more blunt than in *lurida*.

Perla ephyre Newm., 1 ♀, 1 ♂?—The ♂ may be another species.

Capnia sp., 1 specimen.

EPHEMERIDÆ.

Polymitarcys albus Say?—One subimago, probably this species.

Hexagenia bilineata Say, 3 spec.

Hexagenia venusta Eat., 2 spec.

Pentagenia 4-punctata Walsh, 1 subimago.

Leptophlebia sp., 2 specimens.

Siphlurus sp., 2 specimens.

Siphlurus aridus Walk.?—A subimago, perhaps this species.

Heptagenia pulchella Walsh, 2 sp.

Heptagenia sp., 1 specimen.

Cænis diminuta Walk., 3 specimens

ODONATA.

Calopteryx maculata Beauv., 1 ♀.

Hetærina americana Fab., 1 ♂.

Hetærina basalis Hag., 1 ♂.

Lestes forcipata Ramb., 1 ♀.

Argia apicalis Say, 2 ♀, 1 ♂.

Ischnura verticalis Say, 4 spec.

Enallagma civile Hag., 1 ♂.—Manitou Park, Col.

Enallagma prævara Hag., 1 ♂.

Enallagma signata Hag., 1 ♂.

Enallagma sp., 1 ♀.—Thorax villous, moderately large, prothorax with a pale spot each side, postocular spots confluent, abdomen as in *E. signata*, but a small median black spot on segment 10, it is also a little shorter than in that species, pterostigma very short, almost white, as are also the costal veins.

Herpetogomphus designatus Selys, 1 ♂.

Cphiogomphus severus Hag., 1 ♀.—Manitou Park, Col.

Gomphus externalis Selys, 1 ♂.

Gomphus amnicola Walsh, 1 ♂.

Anax junius Drury, 1 ♀.

Macromia tæniolata Ramb., 1 ♂.

Epitheca obsoleta Say, 1 ♀.

Pantala hymenæa Say, 1 ♂, 2 ♀.

Perithemis domitia Drury, 1 ♂, 2 ♀.

Libellula trimaculata DeGeer, 1 ♀.

Libellula basalis Say, 1 ♂.

Mesothemis simplicicollis Say, 3 ♂.

Mesothemis longipennis Burm., 1 ♀.

Diplax rubicunda Say, : ♀.

Diplax costifera Hag., 1 ♀.

Diplax decisa Hag., 1 ♀.—Agrees with Hagen's description, except that the wings are flavescent to the nodus.

Diplax corrupta Hag., 1 ♂, 1 ♀.

NEUROPTERA.

Raphidia oblita Hag., 2 specimens. Colorado.
Hemerobius sp., 1 specimen.
Polystœchotes punctatus Say, 1 sp.
Chrysopa nigricornis Burm., 1 sp.
Chrysopa florabunda Fitch, 1 spec.
Bittacus strigosus Hag., 2 spec.
Bittacus stigmaterus Say, 2 spec.
Brachynemurus abdominalis Say, 1 specimen.
Brachynemurus sp., 2 specimens. Colorado.
Ulula hyalina Latr., 1 specimen.

TRICHOPTERA.

Setodes urowarii Kol., 1 specimen.
Setodes albida Walk., 2 specimens.
Setodes incerta Walk. ?, 1 specimen —Has the palpi shorter and more hairy than other specimens which I have seen and may be different.
Leptocerus dilutus Hag., 3 spec.
Mystacides punctata nov. sp.—Black, with white spots. Palpi black with black hair, second joint short, third much longer, fourth a little shorter than the third, fifth long and flexible, tapering. Antennæ black, basal third annulate with snow white, basal joint black, with a white line on inner side; thorax and abdomen black; legs fuscous, tarsi white; anterior wings black, with many small white spots, most numerous near tip; posterior wings fusco-hyaline, cilia black. Spurs 1.2.2. Length ♀ 8.5 mm. One ♀ and one ♂, Douglas Co., Kans., August, electric light. A larger specimen has a greenish abdomen, the tarsi spotted with black, part of the basal joint of antennæ and the face white; it may be different, but is badly rubbed.
Hydropsyche scalaris Hag., 2 spec.
Hydropsyche sp., 2 specimens.
Hydropsyche phalerata Hag., 8 sp. —There may be two or more species in this.

All the specimens are from Douglas County, Kansas, unless otherwise marked.

Mrs. SLOSSON has sent me a very interesting species as a result of her stay in Florida this Winter. *Thecla acis* was described by Drury in 1773. The species has remained exceedingly rare in collections in this country, and is wanting in a number of the largest. The locality given by Drury is New York, which is evidently an error. *Acis* is a West Indian species, and its geographical range is probably not accurately known. Mrs. Slosson says in regard to it: "I had grown tired of collecting Theclas and finding them all *pœas*, and was surprised to find these two strangers (*acis*) in the net. They were fluttering with the others about blossoms and leaves in the hot sunshine on a path through the low scrub quite near the ocean beach at Lake Worth." There is a good description of the species in French's "Butterflies of the Eastern United States.—HENRY SKINNER.

ENTOMOLOGICAL NEWS.

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PHILADELPHIA, PA., JUNE, 1894.

FIELD MEETING.

ON the 4th of July, 1890, a field meeting of the entomological societies of New York, Brooklyn, Newark and Philadelphia, was held at Jamesburg, N. J. A similar meeting was held on the same date of the following year. These two meetings were so profitable and enjoyable that a number of our entomological friends desire to have a similar meeting this year on the "fourth." Jamesburg is probably the most suitable place to meet, as it a good place to collect and about equidistant between the cities mentioned. It is earnestly hoped that all the entomologists of the four cities will attend, and also any from other places interested in the subject. It is exceedingly pleasant to meet our entomological friends and correspondents, some of whom we have never seen. Greetings and experiences are exchanged and many topics of interest discussed at luncheon time with mother earth for a seat and the blue canopy above, partly intercepted by the delicate springtime leaves. The idea is to devote the morning to collecting if so desired, and then to have a general meet at luncheon and devote the afternoon to social pleasures. Jamesburg is on the Amboy division of the Pennsylvania Railroad, and may be reached from New York *via*. Monmouth Junction, 7.20 a.m.; Newark, 7.50 a.m.; Philadelphia, Broad Street Station, 6.50 a.m.; Camden, 7.00 a.m. Later trains leave New York *via*. Rahway and Philadelphia on the Long Branch division, but it is urged that the early train be taken, as this will bring the party into Jamesburg at the same time. Nothing has been absolutely decided upon yet, but it is sincerely hoped that the meeting may be consummated. If the different societies agree to have the excursion, all parties interested could get any necessary information from the different secretaries. Why not make it a big success?

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

The United States Entomologist.—We have received, with extreme regret, a notice of the resignation of Dr. C. V. Riley of his position as United States Entomologist to take effect June 1, 1894. After that date Dr. Riley's address will be at the U. S. National Museum, Washington, D. C.

Of Dr. Riley's service in the cause of Economic Entomology we need say nothing. His published works speak for him better than anything else. In his resignation the Department will sustain a loss, the extent of which it is impossible to state at present. As Dr. Riley is fortunately still among the living we cannot say as much of praise as we might under other circumstances; but we are not sure that the Department's loss will not be Dr. Riley's gain. The demands upon the official time of the head of the Department of Entomology are so great and are so constantly increasing that it becomes difficult to obtain opportunity for other than mere routine work. The cares and worries of official position, the question of appropriations, of expenditures and red tape generally, is not favorable to the production of the clearest and best scientific thought, and in resigning from the Department to retire among the quieter shades of the National Museum, Dr. Riley has perhaps adopted a course which will be beneficial to his health, while enabling him at the same time to arrange and systematize some of the immense masses of notes and material which he has accumulated during the many years of his active career. While, therefore, we regret Dr. Riley's resignation as Entomologist, deeming no one within our knowledge quite so fit for the position as he, we are not without hope that his successor will be a man who is not unacquainted with Dr. Riley's methods of work, and who will be able to profit by his experience, and perhaps also by his advice in the future. It is desirable that the man to fill this position should be one who has the general respect of the entomologists of the United States, perhaps I should say the world. More than in any other lines the United States Entomologist is looked upon as representing Entomology in the United States. During Dr. Riley's administration his Department has become to be considered as the American center, and to this application is made by entomologists from all portions of the world. Indeed, I may say that a most liberal use of the Department and of the United States Entomologist is made by the entomologists of this country, and particularly those holding official positions at the Experiment Stations. In filling this position merit only should be looked to and politics should not receive consideration for an instant.

The San Jose Scale.—Under date of April 4, 1894, the United States Department of Agriculture, Division of Entomology, issued circular No. 3, second series, with information concerning the character and spread of

the above insect, detailing the places where it has been found in the east and describing its introduction into this country, and its history in a succinct manner. Illustrations showing the insect in all its stages and examples of infested fruit and twigs are also given, and suggestions as to the remedies which should be used. In the body of the circular the suggestion is made that some of the eastern nurseries, and New Jersey was especially hinted at, were responsible for the distribution of the scale in the Atlantic States. This attracted my attention of course, and an investigation was made, which resulted in the discovery that the charge was true, and that the scale had been present in New Jersey for a period of six or seven years at least, and had been distributed from at least one point for three or four years in succession. According to the account given in the Bulletin above cited the scale was first brought to California from Chile about 1870, but did not become noticeable until 1873. In 1886 or 1887, a New Jersey grower ordered from California, San José district, a considerable quantity of Japanese plums which were sent him in due course, from which the scale spread to other stock in his nursery, and through this stock into neighboring orchards. I saw the scale on a few young trees in the fall of 1893, but did not recognize its character, paying very little attention to it since no special complaint was made of its abundance, and because I had not that special knowledge in the group which enabled me to recognize the insect at a glance. A region of from six to ten miles along the Delaware and extending into New Jersey for perhaps five miles back is quite generally infested, although varying of course in degree in the orchards, according to the age of the trees and the date of infection. How much further the insect has spread within the State I have not yet been able to ascertain, but am conducting investigations with the view of discovering the facts. Fortunately the character of the community in the infested district is such that the gentlemen engaged in fruit culture are able to appreciate the gravity of the situation, and wherever it has been shown that the scale has an existence the most active measures have been taken to stamp it out. In the nursery from which it started thousands of dollars' worth of stock has been destroyed, because it was more or less infested by this insect. Many large trees have been taken out and burnt, others have been cut back liberally, and yet others are marked for radical treatment at the proper time. The strictest supervision is now exercised over stock that is sent out, and none that is suspicious will be distributed hereafter. I think I may say positively that from the original source of infection no further distribution of the scale will be made, and I also feel hopeful that wherever the scale has been shown to be present, measures will be taken such as will enable it to be completely destroyed. The investigations that have been made thus far are not sufficient to authorize any conclusions concerning the preferences of the scale, but some quite marked indications exist. For instance, among the plums, the Japanese varieties are favorites, while the American and European varieties seem to be less attacked, although by no means exempt. Among pears, the

Bartlett, Lawrence and Idaho, are prime favorites, while the Keiffer seems to be entirely exempt, the Leconte very nearly so, and other stocks varying in susceptibility. As a rule, French stocks are infested. The most interesting thing noticed seems to be the absolute immunity of the Keiffer, for even where a single tree planted in a trial row has its branches crossed and interlocked with other varieties on each side it will be free, though the neighboring trees on each side may be infested, and I have seen isolated trees of other varieties standing in Keiffer orchard infested, while the Keiffers themselves did not show the least trace of the scale. Yet it may be premature to assert that under all circumstances the Keiffer is exempt. The introduction of this scale into the east is another lesson in care, and it gives another illustration of the way in which injurious insects are distributed. Too great care cannot be exercised in the examination of stock received by nurseries from other districts, and on the other hand every farmer, or every fruit grower, before he sets out a tree should examine it with extreme minuteness in order to make certain that it does not introduce some pest theretofore unknown on his land. One of the objects of this note is also to attract the attention of entomologists and agriculturists to the importance of seeking it in orchards throughout the east, and especially orchards that have been newly set within the last half a dozen years. The nursery from which this insect was distributed is one having a very large trade, and stock that is likely to be infested has been sent in every direction throughout the east. It is known that at least one orchard in Pennsylvania is infested, and probably more will be found; but it behooves the officers of horticultural societies and agricultural bodies to look into this matter now when there is yet a possibility of limiting or checking the spread of the insect, whereas in a very few years it may be so much beyond our control that nothing can be done.

An Exportation of Beneficial Insects.—Heretofore the discussion has been mostly of the possibility of importing insects that are, or that are supposed to be, beneficial to agriculturists by breeding upon injurious species. Dr. Riley has informed us that an experiment has just been made by which one of our insects, *Chilocorus bivulnerus*, has been exported to the West Indies with the idea of destroying certain scales occurring in those islands. The facts as given by Dr. Riley are, that for three or four years the extensive lime plantations of the Montserrat Co., Birmingham, England, located on the Island Montserrat, have been suffering from the attacks of various scale-insects, and particularly *Mytilaspis citricola* and *Chionaspis citri*. Spraying and fumigating were tried at the suggestion of Dr. Riley on a limited portion of the estate; but the injury continued and became so serious that finally he determined to ask leave of absence from official duties and personally investigate, the Montserrat Co. paying expenses. Dr. Riley was accompanied on this trip by Mr. H. G. Hubbard, whose thorough work on the insects infesting oranges in Florida peculiarly fitted him for this investigation. The start was made February 17th, and two months were spent at Montserrat, Dominica and

Martinique, the three islands on which limes are most extensively grown, and in which they seem to come to the greatest perfection. Dr. Riley says that the trip was full of interest, and will, he fully believes, ultimately result in benefit to the Company. Among the natural enemies found at work among the scale insects, some of which were identical with those found in the United States, there was no trace of the Twice-stabbed Lady-bird, *Chilocorus bivulnerus*, which is, after all, most effective in keeping the scales in check in Florida. Anticipating its absence, Dr. Riley had arranged for shipments from home, some of which had already arrived in good condition before he left Washington, and after latest advices from Mr. Hubbard, were reveling in Montserrat scales. Dr. Riley thinks there is every hope, therefore, that we may have in this instance another striking example of the value of the importation of beneficial insects under peculiarly favorable conditions.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

THERE will be no NEWS for July or August.

PICTURES for the album of the American Entomological Society have been received from W. Hampton Patton, Dr. F. E. Blaisdell, G. B. King.

I HAVE a large number of the cocoons of *Pronuba yuccasella* containing living pupæ, and shall be glad to send some, on application, to anyone who is interested in trying to secure fruit from *Yucca filamentosa* growing in gardens which are north of the range of the insect, and hence do not normally produce fruit.—C. V. RILEY.

TRANSACTIONS of the American Entomological Society, vol. xxi, No. 2, now in press, will contain the following papers: Revision of the genera and species of Desmori of North America, by Wm. G. Dietz, M.D. A preliminary revision of the Lepidopterous family Notodontidæ, by B. Neumoegen and H. G. Dyar. Some new American Acarina, by Nathan Banks.

It will be of interest to the entomologists of the United States to learn that the University of Kansas has recently acquired by purchase the entire collection of North American Diptera, including the types made by Prof. Townsend. The collection will make an especially valuable addition to the already very large collection of American Diptera, by far the largest in existence, now at the University of Kansas. The University collection now includes between twenty-five and thirty thousand specimens, and between four and five thousand species. The resources of the University, under the able administration of Chancellor Snow, and aided by his son, Mr. W. A. Snow, will enable this collection to be soon put in order, permitting for the first time the easy and ready determination of collections. An expedition to the southwest, especially for the collection of Diptera, is contemplated the present season, which, it is hoped, will add from five to ten thousand specimens to the collections.

S. W. Williston.

An open Letter from Dr. Riley.—To friends and correspondents: Inasmuch as a press despatch, inspired by other motives than love of truth, has given wide circulation to a false statement in regard to my recent resignation as Entomologist of the U. S. Department of Agriculture, and inasmuch as I am receiving more letters of regret and inquiry than can well be responded to in writing, this printed form is employed to save time in answering letters and to correct any misconception of the facts.

As shown by the text of the letter addressed by me to the Secretary of Agriculture in resigning office, the action was prompted by a due regard for the wishes of my family, for my health, and for my peace of mind; and, as intimate friends well knew, it had been contemplated for some time. It was taken without suggestion from, or consultation with, the Secretary of Agriculture or anyone else, and, since resignation of government office is so often looked upon as practical dismissal, I took particular pains to state these facts.

To those who may feel regret at this course, or who have already expressed it, let me say that I was never much in love with Department life, as, under the most favorable circumstances, there are many unpleasant features connected with it to one ambitious to achieve results and impatient of political methods, unnecessary red tape or needless restrictions.

Many years of activity in the position which I am about to leave have resulted in impaired health, and I have simply taken a step which ought to have been taken long ago. To those who feel interested in my future let me say that for a while I shall make no definite plans, but that I can never lose interest in the subject of entomology. Relieved of the administrative detail and drudgery connected with the office, I hope, in connection with the honorary curatorship of the Department of Insects in the U. S. National Museum, to be able to do some long contemplated work of a purely scientific character. My address in future will, therefore, be,

care U. S. National Museum, Washington, D. C., to which all publications now addressed to me at the Department of Agriculture should be forwarded. C. V. RILEY.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III, Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

N. B.—It is to the generosity of Mr. Liebeck, who has devoted much of his time to the matter, that the NEWS has been able to identify Coleoptera for its subscribers. As Mr. Liebeck now desires a well-earned vacation, subscribers are requested not to send any more Coleoptera for identification until after September 1, 1894, as such specimens cannot receive attention until that time.—EDS.

Entomological Literature.

1. ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, vii, Nos. 6–12, March, 1894.—Coleopterological notices—v, T. L. Casey, 1 pl.

2. THE BOTANICAL GAZETTE, xix, 4. Madison, Wis., April, 1894.—Artificial cultures of an entomogenous fungus, G. F. Atkinson, 3 pls.

3. BULLETIN OF THE AMERICAN MUSEUM OF NATURAL HISTORY, vi. New York, April, 1894.—Studies of some species of North American Aegeriidæ, W. Beutenmüller.

4. OVERSIGT OVER DET KONGELIGE DANSKE VIDENSKABERNES SELSKABS FORHANDLINGER, 1893, 2. Copenhagen.—Larvæ of the genus *Acilius*, F. Meinert, 1 pl.

5. NATURE. London, April 5, 1894.—Centipedes and their young, F. W. Urich.—April 12. Bees and dead carcases, W. F. Kirby.—May 3. Centipedes and their young, Dr. R. v. Lendenfeld.

6. TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1893.—A revision of the genus *Yphthima*, with especial reference to the characters afforded by the male genitalia, H. J. Elwes and J. Edwards. The effects of temperature in the pupal stage on the coloring of *Pieris napi*, *Vanessa atalanta*, *Chrysophanus phlæas* and *Ephyra punctaria*, F. Merrifield, 1 pl. On the phylogenetic significance of the variations produced by differences of temperature in *Vanessa atalanta;* an appendix to

the preceding paper, Dr. F. A. Dixey. Descriptions of new genera and species of Neotropical Rhynchota, W. L. Distant. On some neglected points in the structure of the pupæ of Heterocerous Lepidoptera, and their probable value in classification; with some associated observations on larval prolegs, Dr. T. A. Chapman. Two new species of *Pulvinaria* from Jamaica, T. D. A. Cockerell, figs. On stridulation in ants, Dr. D. Sharp. *Dicranota*, a carnivorous Tipulid larva, Prof. L. C. Miall, 4 pls. On a Lepidopterous pupa (*Micropteryx purpurella*) with functionally active mandibles, Dr. T. A. Chapman. Description of a new genus and species of Papilionidæ from Mexico, O. Salvin. Formicidæ of St. Vincent, collected by Mr. H. H. Smith, Dr. A. Forel. The cost of insect collections, Dr. D. Sharp. On the sexes of larvæ emerging from the successively laid eggs of *Smerinthus populi*, E. B. Poulton. A revision of the genus *Oeneis*, H. J. Elwes and J. Edwards.

7. PROCEEDINGS OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, 1893, part iii.—Heredity in the social colonies of the Hymenoptera, E. D. Cope.

8. THE ENTOMOLOGIST'S MONTHLY MAGAZINE. London, April, 1894. —A new species of *Aleurodes*, J. W. Douglas, figs. Note on *Thermobia furnorum* Rovelli, Dr. D. Sharp. *Thermobia furnorum* Rovelli and *Lepismodes inquilina* Newman, R. McLachlan. The entomology of a London bakehouse, F. Milton. Why are large Perlidæ resident in Scotch but not in Swiss lakes?, A. E. Eaton. Notes on the earlier stages of the Nepticulæ, J. H. Wood.—May, 1894. Abundance of *Pyrameis cardui* L. in the Ziban, Algeria, Rev. A. E. Eaton. Patent postal box without packing, H. G. Knaggs. British Hemiptera, additions and corrections, J. Edwards. Supplement to annotated list of British Tachiniidæ, R. H. Meade. *Tinea pallescentella* in a wasp's nest, C. G. Barrett.

9. THE ENTOMOLOGIST. London, April, 1894.—The new entomology (cont.), W. E. Sharp. A catalogue of the Lepidoptera of Ireland (cont.), W. F. de V. Kane.—May, 1894. John Jenner Weir (with portrait), Ed. A dark chamber for larvæ, H. G. Knaggs, figs. The genus *Philometra* Grote, J. B. Smith. Remarks on certain genera of Coccidæ, W. M. Maskell.

10. THE GEOLOGICAL MAGAZINE. London, April, 1894.—Further remarks on the tertiary (Eocene) insects from the Isle of Wight, and on others from the Lias and Coal-measures, Rev. P. B. Brodie.

11. THE POPULAR SCIENCE MONTHLY. New York, May, 1894.—The guests of the mayflower, Prof. C. M. Weed, figs.

12. TERMESZETRAJZI FUZETEK, 1893, Nos. 3-4. Budapest, Jan. 31, 1894.—New or little-known Myriapods in the zoological collection of the Hungarian National Museum, Dr. E. v. Daday, 3 pl.

13. ZOOLOGISCHER ANZEIGER. Leipzig, April 2, 1894.—Contribution to the knowledge of the abdomen of male Elateridæ, C. Verhoeff, figs. On Hydrachnidæ, R. Piersig (cont.).—April 9, 1894. Predatory Pseudoscorpions, W. Hess. On the significance of the endosternite of Arach-

nids—ii, W. Schimkewitsch. Anatomy of the salivary glands of the Hymenoptera of the family Ichneumonidæ, M. Bordas.

14. THE ANNALS AND MAGAZINE OF NATURAL HISTORY. London, April, 1894.—The Elateridæ of Japan, G. Lewis. Corylophidæ and Trichopterygidæ found in the West Indian Islands, Rev. A. Matthews. Descriptions of some new species of Heterocera from Central America, H. Druce. Contributions to the knowledge of the antennary sense organs of insects, C. M. Child (transl. Zool. Anz. Feb. 5, 1894).

15. PROCEEDINGS OF THE VICTORIA INSTITUTE OF TRINIDAD. Part i. Port-of-Spain, March, '94.—Notes on the study of butterflies, B. Rake, M.D.

16. BULLETINO DELLA SOCIETA ENTOMOLOGICA ITALIANA, xxvi, 1. Florence, March 25, 1894.—First materials for a limnological fauna of the Lago di Garda, A. Garbini. Materials for a catalogue of Italian Mallophaga and Pediculina, A. Berlese. Revision of the European species of the Mosquito family (cont.), E. Ficalbi.

17. THE JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES. New York, March, 1894.—On the emasculating botfly, figs.

18. TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY, xxi, 1. Philadelphia, January–March, 1894.—Catalogue of the Coleoptera of Alaska with the synonymy and distribution, J. Hamilton, M.D. Descriptions of new genera and species of Noctuidæ, J. B. Smith, Sc.D., 6 pls. Notes and descriptions of North American Bombylidæ, D. W. Coquillett.

19. SOCIETAS ENTOMOLOGICA. Zurich-Hottingen, March 1, 1894.—On the marks of copulation among insects, Dr. K. Escherich.—April 15. Some new termites from Ceylon, with remarks on their guests, E. Wasman, S. J.

20. ANNALES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, xxxviii, 3. Brussels, 1894.—Study on the geographical distribution of the Buprestidæ, C. Kerremans.—xxxvii, 13, 1893. President's address [solitary and communal life among insects], M. Tosquinet.

21. MISSISSIPPI AGRICULTURAL AND MECHANICAL COLLEGE EXPERIMENT STATION. Bulletin No. 28.—The horn-fly, H. E. Weed. Agr. Coll., Miss., January, 1894; figs.

22. THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION. London, April 15, 1894.—The life-history of a Lepidopterous insect, comprising some account of its morphology and physiology, J. W. Tutt. Dealers and stealers, H. R. Brown. John Jenner Weir—obituary, J. W. Tutt, with portrait.

23. ATTI DELLA SOCIETA TOSCANA DI SCIENZE NATURALI. Memorie, xiii. Pisa, 1894.—Contributions to the study of the digestive tube of Arthropoda: histological and physiological researches on the digestive tube of Orthoptera, G. Visart, figs.

24. LE NATURALISTE. Paris, April 15, 1894.—The rearing of Hymenoptera, Dr. F. Regnault.

25. COMPTES RENDUS. L'ACADEMIE DES SCIENCES. Paris, April 9, 1894.—On antennal nerves and chordotonal organs in ants, C. Janet. On revivification of Tardigrada, D. Lance.—April 16. On the venomous apparatus of Hymenoptera, M. Bordas. The rejection of blood as a means of defense in some Coleoptera, L. Cuenot.—April 25. Diptera parasitic on Acridians—the Bombylidæ; larval hypnody and metamorphosis with active and resting stages, J. K. d'Herculais.

26. PSYCHE. Cambridge, Mass., May, 1894.—The habits of the aculeate Hymenoptera—iv, W. H. Ashmead. Further notes on Coleoptera found with ants, H. F. Wickham. Two cave beetles not before recorded, H. Garman, figs. New and undescribed genera and species of West African Noctuidæ—iv, W. J. Holland, 1 pl. Preparatory stages of *Pseudohazis shastænsis* Behrens, H. G. Dyar.

27. PROCEEDINGS OF THE AMERICAN PHILOSOPHICAL SOCIETY, xxxii. Philadelphia, April 4, 1894. —Tertiary Tipulidæ, with special reference to those of Florissant, Col., S. H. Scudder, 9 pls.

28. FAUNA, 1894, 1. Luxembourg.—Honey dew and its origin, Dr. E. J. Klein.

29. SCIENCE. New York, March 23, 1894.—The sembling of a large native moth, *Telea polyphemus*, H. Garman.

30. THE AMERICAN JOURNAL OF SCIENCE, No. 281. New Haven, Conn., May, 1894.—Observations on the derivation and homologies of some Articulates, J. D. Dana.

31. THE CORRELATION OF STRUCTURE and host relation among the Encyrtinæ, L. O. Howard. Wilder Quarter Century Book, pp. 177–185. Ithaca, N. Y., 1893.

32. JOHNS HOPKINS UNIVERSITY CIRCULARS, xiii, No. 111. Baltimore, April, 1894.—Origin of the "Nasutus" (soldier) of *Eutermes*, H. M. Knower, figs.

33. THE GARDENERS' CHRONICLE. London, April 28, 1894.—Death to the green-fly, M. C. C.

34. LEPIDOPTERA INDICA. By F. Moore. Pt. xvii (vol. ii, pp. 113–136, pls. 123–130). London, L. Reeve & Co., 1894.

35. ZEITSCHRIFT FUR WISSENSCHAFTLICHE ZOOLOGIE, lvii, 3. Leipsic, April 17, 1894.—Contributions to the knowledge of the developmental history of the scorpion, A. Brauer.

36. POPULAR SCIENCE NEWS. Boston, May, 1894.—Insect parasites of animals—i, J. B. Smith, figs.

37. THE CANADIAN ENTOMOLOGIST. London, Ont., May, 1894.—Butterflies common to Norway and Arctic America, F. M. Webster. *Trypeta solidaginis* Fitch and its parasites, Rev. T. W. Fyles. Some notes on the collecting season of 1893, J. A. Moffat. Notes on some scale insects of the subfamily Diaspinæ, T. D. A. Cockerell. A reply to Mr. W. H. Edwards, H. J. Elwes. New North American Homoptera—viii, E.

P. Van Duzee. *Zethus aztecus* in Florida, W. H. Patten. Note on *Acronycta cristifera* Walk., A. R. Grote. Folded wings in *Venus*, W. H. Patten.

38. The London, Edinburgh and Dublin Philosophical Magazine and Journal of Science (5), 228. London, May, 1894.—Note on the elasticity of spider lines, J. H. Gray.

39. The British Naturalist. London, April 15, 1894.—The effects of cold upon insect pests, F. V. Theobald.

40. Knowledge. London, May 1, 1894. Insect secretions—i, E. A. Butler.

41. Fifth Annual Report of the Missouri Botanical Garden. St. Louis, 1894.—The emergence of *Pronuba* from the Yucca capsules, J. C. Whitten.

42. Proceedings of the California Academy of Sciences (2), iv, pp. 92–121. San Francisco, April 19, 1894.—Second report on some Hymenoptera from Lower California, Mexico, W. J. Fox.

43. Journal of the New York Entomological Society, i, 4, December, 1893. [Not previously received.]—Spring collecting in northern Florida, Mrs. A. T. Slosson. A strange form of *Catocala*, G. A. Ehrmann. A preliminary revision of the Bombyces of America north of Mexico (cont.), B. Neumoegen and H. Dyar. Four new genera and species of West African Sesiidæ, W. J. Holland, figs. List of the Coleoptera of Northeastern America, with special reference to the fauna of New York City and vicinity (cont.), C. W. Leng and W. Beutenmüller.

44. Insect Life, vi, 4. Washington, D. C., May, 1894.—A new and destructive peach tree scale (*Diaspis lanatus* Morg. and Ckll.), Eds., figs. The currant stem-girdler (*Phyllœcus* [*Janus*] *flaviventris* Fitch), C. L. Marlatt, figs. Habits of *Stibadium spumosum* Gr., M. E. Murtfeldt. The insect guests of the Florida land tortoise, H. G. Hubbard, figs. The control of *Phylloxera* by submersion, Eds., figs. Acorn insects, primary and secondary, M. E. Murtfeldt. Preliminary report on suppressing the San José scale in Virginia, D. W. Coquillett.

45. Proceedings of the Boston Society of Natural History, xxvi, pp. 220–240, April 18, 1894.—*Spharagemon:* a study of the New England species, A. P. Morse. .

46. Nebraska State Horticultural Report for 1894, pp. 154–223. [Lincoln, Neb.]—Insect enemies of the apple tree and its fruit, L. Bruner, figs.

47. Catalogus Hymenopterorum hucusque descriptorum systematicus et synonymicus. Auctore Dr. C. G. de Dalla Torre. Vol. 11: Cynipidæ. Lipsiæ, Sumptibus Guilelmi Engeimann, MDCCCXCIII, 140 pp.

48. Species des Hymenopteres d'Europe et d'Algerie fondé par Edmond André et continué sous la direction scientifique de Ernest André. 45e Fascicule [pp. 241–336, vol. v—Braconidæ]. Paris, M. Duboscard,

Jan. 1, 1894. 46e Fascicule [pp. 273-336, pls. vii, ix, xii-xvii, vol. vi—Chrysididæ; pls. iii-viii, vol. v], April 1, 1894.

49. ENTOMOLOGISCHE NACHRICHTEN, XX, 6, Berlin, March, 1894.—Review of H. J. Kolbe's "Einfuhrung in die Kenntniss der Insekten, C. Verhoeff. On the comparative morphology of the abdominal appendages of Coleoptera, id.—7. April, 1894. On primary and secondary sexual characters of insects, an answer to Dr. K. Escherich, id.—8. April, 1894. Descriptions of new Lamellicorns, Buprestidæ and Cerambycidæ from Central and South America, A. F. Nonfried.

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The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper was published; * denotes new North American forms.

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The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

April 26, 1894.

A regular stated meeting of the Entomological Section of the Academy of Natural Sciences was held in the Hall, S. W. cor. Nineteenth and Race Streets, this evening, Dr. G. H. Horn, Director, presiding. Members present: E. T. Cresson, G. B. Cresson, Seiss, Ridings, Johnson, Calvert, Liebeck, Welles and Skinner. Associates: Fox, Boerner. Mr. Reineck visitor. Eight specimens of *Aegialites fuchsii* were presented by Mr. Charles Fuchs, of San Francisco, Cal. Dr. Horn presented six specimens of *Platypsylla castoris*. Mr. Calvert read a letter from Baron Edmond de Selys-Longchamps, thanking the American Entomological Society for electing him a correspondent. Mr. Calvert stated that in his Catalogue of the Dragonflies of Philadelphia the first appearance of *Anax junius* was given as May 1st. He had observed a specimen this year at Westville, N. J., on April 21st. Four years ago he had described a species from Florida under the name *Lepthemis gravida*, which was one of Dr. Hagen's manuscript names. According to the latest generic developments he found that *gravida* did not belong to *Lepthemis*, but to the genus *Cannacria* described by Kirby. This genus contains two other species, *furcata* and *batesii*. These species can all be separated by good anatomical characters. The speaker also stated that he had examined two hundred specimens of a species of *Orthemis*, and in only one wing of one specimen did he find variation in the neuration which would be indicative of generic character. Dr. Horn stated that in 1868 *Platypsyllus*

was found in the museum at Amsterdam, and in 1874 he had also investigated it. Up to the present time nothing has been done toward distinguishing the sexes. The speaker pointed out the sexual peculiarities (see ENT. NEWS v, 141). Remarks were also made about *Cassida nebulosa* Linn. (see ENT. NEWS v, 146). Mr. William Reineck was duly elected an Associate of the Section. HENRY SKINNER, *Recorder.*

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

CORRECTIONS IN PSELAPHIDÆ.

By E. BRENDEL, M. D.

The occasion for this communication is a lot of Mexican and South American Pselaphidæ donated to me by my kind friend and distinguished entomologist, Achille Raffray. An accompanying letter, dated Tientsin, China, March 16, 1894, contains some interesting remarks, which I shall quote in his own language, as follows:

1. Un *Euplectus* de Californie, qui je ne puis determiner. Le connaissez vous?

For a description of this n. sp. see below.

2. Une *Bryaxis hæmatica* var. *perforata* Aubé, de l'Europe meridionale. Je possede le meme insecte, exactement le meme, sous le nomme de *B. obscura* Dejean, c'est une type authentique, de la collection Reiche il vient de l'Amerique boreale, sans localite precis.

I suppose there must have occurred a misplacement of a label with the *obscura* Dej. The specimens before me are true *hæmatica;* one from Gall. merid. the var. *perforata* (figs. 1–2); the other var. *bidentata* (fig. 3) from Germany; var. *bidentata* resembles somewhat *B. illinoiensis.*

3. *Cylindractus.* J'ai etudie a nouveaux ce genre. Il est decidement identique aux *Tychus* et l'especе est voisine de votre *ludovicianus;* mais c' est une especе distincte.

4. *Pselaptrichus* est une sousgenre de *Bythinus* auquel il est attachee par des especes du Japon.

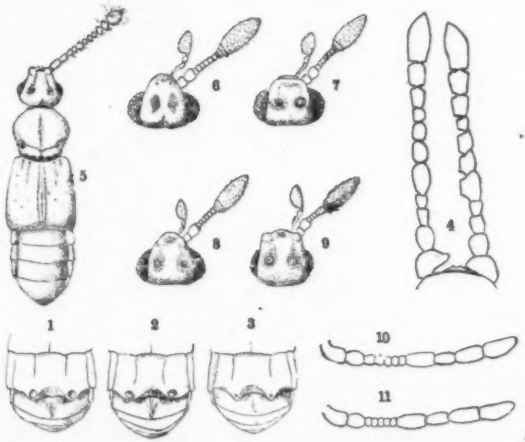
5. Je crois, que *Bryaxis albionica* est tres different de "*propinqua*" Lec. Mes exemplaires viennent aussi de Californie. J' envoie vous le type de Motschulsky.

Here I call to my recollection, that LeConte's *propinqua* was as "thorace impunctata, polita" and (the ♂ being unknown)

comprising all species of that description; but after the recognition of the male one of them was the true *propinqua* and my *B. polita* was a nondescript (teste Ulke). The description of *propinqua* in "Short Studies, 1881" is very similar to that of *albionica*, and considering the varieties of the antennæ and color, and the geographical distribution of *propinqua*, Ulke, as well as I, supposed the two species identical.

Bryaxis albionica Motsch. ♂.—Piceous black. Antennæ, palpi and legs dark reddish brown. Elytra bright red, base and suture dark brown, impunctate or very unevenly punctate. Length 1.40 mm.

Head punctured at the sides, with the foveæ small, mutually four times farther distant than either from the eye, vertex little shorter than quad-



rate, front suddenly declive, the frontal fovea wanting or hidden by pubescence on the declive part, which bears two small teeth; tempora rounded, as long as the eye. Antennæ as in figure 4, where the right antenna is turned. Prothorax convex, though the foveæ almost fully seen from above. Abdomen: first dorsal three times wider than long, carinæ very short, far apart. Posterior tibiæ curved, flattened, not dilated, intermediate tibiæ with a strong spur at the end.

The specimen before me is one of Motschulsky's types, the ♀, from Los Angeles, has the front not declive and the fovea normal. Identical with *fundata* Casey.

Euplectus raffrayi n. sp. (fig. 5) ♂.—Brown, impunctate, pubescence coarse, sparse, form resembling *E. linearis*. Length 2.0 mm.

Head with the occiput convex, finely carinate, tempora arcuate, convergent, longer than the eye; frontal margin depressed, fovea three times farther apart than from the eye, grooves straight, convergent. Antennæ unusually long, longer than the head and prothorax, loosely jointed. Prothorax wider than the head, as wide as long, lateral edge minutely serrulate; disc with a medial, fusiform groove extended to the angulated transverse groove connecting the lateral foveæ; the base with five ample, semicircular impressions. Elytra as long as wide, shoulder width almost as wide as the prothorax; disc with a few traces of coarse impressions, the base tripunctate and trilineate, the sutural line slightly arcuate beyond the middle; second line one-quarter length, the third one-eighth. Abdominal dorsals subequal, but rather slightly increasing in length, without any basal impressions or carinæ; ventrals 2, 3, 4, with a shallow medial impression, 3d in the apical third with a transverse carina across the impression; 5th, the posterior margin, depressed; 6th, the base depressed; the 7th, or, according to Casey's etymological experiment, analoge to "vertexal" the podexal segment is lozenge-shaped, not carinate and almost surrounded by the 6th.

California. This is the largest species known.

Among the Mexican species there are four *Eupsenius* which may possibly occur inside of our limits. They are:

E. politus Reitter, St. Thomas, 12 mm. long, unicolorous yellowish red, occiput sulcate, front arcuately porrected, bearing two punctures (fig. 6).

E. mexicanus Raffray, 1.3 mm. long, dark red, elytra brighter, front perpendicularly declive, above with a shallow transverse impression (fig. 7).

E. nitidus Raffray, Mexico, 1.4 mm. long, front obliquely declive, before the antennal line with a wide shallow impression and faint foveal sulcus (fig. 8).

E. gibbicollis Raffray, Mexico, 1.55 mm. Dark red, elytra brighter, vertex quadrate, trapezeous, front declive, depressed between the antennæ. Pronotum swollen along the median line (fig. 9).

Ctenisis æquinoctialis, Amazon. Fig. 10, antenna.

Ctenisis dispar, Mexico. Fig. 11, antenna.

———o———

THE AMERICAN GENERA OF SAPROMYZINÆ.

By S. W. Williston.

In the examination recently of a considerable material in this family, I have discovered all of the known American genera, all of which, save perhaps *Griphoneura*, occur in North America. As I shall not have the opportunity for some time of preparing the results of my studies for publication, I herewith offer the fol-

lowing synopsis of the genera, in the hopes that it may be of service to others.

Sapromyzinæ.—Small species, seldom more than seven millimeters in length. Head as broad or a little broader than the thorax; front with one or two bristles on each side in front of those at the vertex. Antennæ usually short and porrect; sometimes the third joint elongated. Face without vibrissæ. Abdomen short-ovate. Legs never elongate; auxiliary vein of the wings present; cross-veins never approximated; basal cells small, but complete.

1.—All the tibiæ with a preapical bristle; ovipositor flattened, horny; bristles of the front never reaching below the middle . . . . 2.
All the tibiæ, or at least the front and middle pairs, with a preapical bristle; bristles of the front descending below the middle; ovipositor not horny . . . . . 3.
2.—Metallic black species, front narrow . . . . . **Lonchæa.**
Yellow, or yellowish species; front broad . . . . . **Palloptera.**
3.—Arista thickened and with short, dense plumosity . . **Pachycerina.**
Arista slender, base, pubescent or plumose . . . . . 4.
4.—Face very broad, in profile strongly convex below . . **Physogenua.**
Face receding, flattened, or gently arched . . . . . 5.
5.—First posterior cell much narrowed in the margin . . **Griphoneura.**
First posterior cell not or but slightly narrowed in the margin . . 6.
6.—Shining black species; third joint of antennæ more or less elongate. **Lauxania.**
More or less yellow species, at least the thorax not shining black; third joint of the antennæ not more than three times as long as wide . . . . . **Sapromyza.**

Sapromyza longipennis, *S. lupulina*, *S. vulgaris* and *S. compedita*, occur on the Pacific coast, at least all but the first, which I have seen from Kansas. *S. vulgaris* I have also taken from the West Indies. It is identical with *S. ocellaris* Towns., and, notwithstanding the abdominal bands, is doubtfully distinct from *S. cincta* from Texas and Porto Rico (Roeder). *S. macula* Loew seems to be the same as *S. octopuncta* from the West Indies and South America. *S. plagosa* Giglio-Tos, from Mexico, is the same as *S. geminata* Wied., which I have from Brazil. *Palloptera jucunda* Loew, from Sitkha, occurs also in Washington and California. *Sapromyza urina* Giglio-Tos, from Mexico, seems identical with *Physogenua ferruginea* Schiner, which I have from Brazil. In any event, it is a *Physogenua* and not a *Sapromyza*. *Pachycerina verticalis* Loew apparently extends over the greater part of the United States. I have seen it from Florida, Connecticut and Kansas.

Hyparpax, var. **tyria**, n. var.

By ANNIE TRUMBULL SLOSSON.

Differing markedly from typical form of *H. aurostriata* Graef by having wings so thickly sprinkled or dusted with dark red that the background is nearly concealed. The whole tint of primaries thus becomes a deep wine color or Indian red. The secondaries, instead of being white "with traces of pink scales along outer margin," have a broad red border, which leaves little more than the base white. The thorax is very dark smoky brown with faint purplish tinge. In one striking form, almost deserving a varietal name of its own, the red dots on primaries coalesce and form a solid, heavy median band, making the whole area between the two characteristic transverse lines an even, uniform red.

Described from nine males and two females taken at various times in Punta Gorda, Fla.

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A NEW FORM OF PAGARA.

By HARRISON G. DYAR.

Pagara eudora n. sp.—White, pectinations of antennæ and eyes black. Head white, with a slight yellowish tint, ocher-yellow behind in a transverse band running behind the eyes; palpi dusky above. Wings white above and below, not thickly scaled centrally; a few yellow scales at base of fore wing. Veins 7–9 of fore wing stalked, 10 from near apex of cell; on hind wings vein 8 arises beyond middle of cell, 5 rather close to 4. Abdomen white, but somewhat imperfect in the specimen. Exp. 24 mm.

Hab.—Texas. One specimen from Mr. J. Doll.

Differs from *P. simplex*, of which it may be a variety, in being white.

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Description of a variety of Euphoria heretofore undescribed.

By EDW. A. KLAGES, Crafton, Pa.

Euphoçia inda Linn. n. var. *nigripennis*.—This variety is readily distinguished by the elytra and scutellum being entirely sooty, while in the type the same portion is luteous, with small black spots.

Described from ♂ and ♀ in my collection.

Occurs near Pittsburgh, Pa., in September, on lilac.

DESCRIPTIONS OF NEW HYMENOPTERA.

By T. D. A. COCKERELL, Las Cruces, N. Mexico.

The types of all descriptions published under the above head will be placed in the collection of the American Entomological Society.

These descriptions have been prepared at the suggestion of Mr. Fox, without whose kindly aid I should not have been able to attempt them.

MUTILLIDÆ.

Sphærophthalma foxi n. sp. Ckll. ♂.—Head black, rounded, subquadrate seen from above, punctured; cheeks with sparse, short, whitish hairs; crown with rather sparse, fulvous hairs, becoming reddish on occiput; eyes prominent, shining; antennæ very dark brown. Thorax black, punctate, sides with sparse whitish hairs, dorsum of pro- and mesothorax with short, not at all dense, orange-red pubescence; metathorax punctate-reticulate, with some long black hairs; first segment of abdomen subnodose, more or less constricted at apex, punctate, dark brown, rather sparingly hirsute with dark hairs. Abdomen ovate-subacuminate; above and below, except the first segment and the blackish terminal one, bright orange-red, with a short, not very thick pubescence of the same color. Legs dark brown, femora punctate. Wings dark brown, the first two submarginal cells, and a region below them, being distinctly paler. Marginal cell pointed at its proximal, and squarely and broadly truncate at its distal end; second submarginal receiving the recurrent nervure much before its middle; second transverso-cubital nervure broken just before the point of junction with the cubital, leaving the second submarginal cell open; third submarginal cell incomplete by the failure of the lower two-thirds of the third transverso-cubital nervure. Length 7–9 mm.; of fore wing 5–6 mm.

Hab.—Iuarez, State of Chihuahua, Mexico, close to the river bank; two specimens running on the ground, Aug. 26, 1893 (Ckll.).

Mr. Fox observes that this resembles somewhat *S. fulvohirta*, but it is clearly distinct from that, and judging from the descriptions, I fail to associate it very closely with any described species.

As it was taken near the south bank of the river which flows between the United States and Mexico, it is to be looked for within U. S. territory, although it cannot yet be added to our lists.

Sphærophthalma townsendi n. sp. Ckll. ♂.—Black, with bright orange-red pubescence. Head rounded, pitch-black, shining, strongly punctate,

face and cheeks with short, thick, black hairs; crown with somewhat scattered red hairs. Eyes round, prominent. Thorax ovate, slightly broader than head, pitch-black, strongly punctured; the punctures on the metathorax are so extremely large and close together that this portion might justly be described as reticulate. The dorsum of the pro- and mesothorax is densely clothed with very brilliant orange-red hairs; the hairs on the metathorax are somewhat longer, not so dense and black; first abdominal segment widened gradually, large, not at all nodose, practically sessile upon the second. Abdomen suboval, not very much longer than thorax, pitch-black, closely punctured; first and second segments clothed with black hairs, which are short and rather sparse on the second; dorsum and sides of the remaining segments thickly clothed with brilliant orange-red hairs. Antennæ black, the tips somewhat pale. Legs black, with short black hairs like those on underside of abdomen. Wings smoky-brown, marginal cell subquadrate, its costo-proximal angle the sharpest, the costo-distal nearly a right angle; second submarginal receiving recurrent nervure before its middle; a hyaline spot just below apex of second submarginal. Length about 11 mm.; of front wing 8 mm.

Hab.—Zuni River, Arizona, July 28th (C. H. T. Townsend), one specimen.

Notwithstanding the difference in the shape of the first abdominal segment, this seems to be closely related to *S. coccineohirta*, from which it may be readily distinguished by the shape of the abdomen, and by the greater length of the marginal cell in *coccineohirta* in proportion to its breadth. The hyaline line crossing the second submarginal cell in *coccineohirta* is barely indicated in *townsendi*. The *coccineohirta* used for comparison is a pallid variety found at Las Cruces, N. Mex. I have not seen the Californian type.

Photopsis territus n. sp. Ckll. ♂.—Head and antennæ honey-color, eyes large, black, shining, head round, shining; first joint of flagellum shorter than second, and very short in comparison to the same joint in *P. mellipes*, which resembles the present species in its pale legs. Thorax elongate-ovate, honey-color, with sparse, pale hairs, finely punctate; metathorax swollen, reticulate, with long white hairs. Abdomen elongate, petiolate; petiole joint moderately long, fairly stout, not much swollen, terminally subsessile, strongly punctured, hirsute with white hairs; abdomen rather narrow, shining, tapering, honey-color, with the terminal third more or less fuscous, hirsute with sparse, long, white hairs, and shorter ones fringing the ends of the segments. Legs pale yellowish, with long white hairs. Wings clear, hyaline, spotless, slightly iridescent, venation extremely pale; stigma honey-yellow, somewhat more than half included in marginal cell; marginal cell lanceolate, obliquely truncate at tip; first submarginal elongate, narrower than marginal; second submarginal irregu-

larly subquadrate, receiving the recurrent nervure a little before its middle; the cubital nervure elbowed at the point of junction, and also where it joins the first transverso-cubital nervure; third submarginal entirely wanting. Length about 11 mm.; of front wing 7 mm.

Hab.—Las Cruces, N. Mex., August (Ckll.).

Mr. Fox, who first determined this species as new, remarks that it is near *attenuata* Blake, but larger, first segment of abdomen longer, second submarginal cell differently shaped.

The specific name occurred to me because the species is so pale, with its hairs white and standing on end.

In comparing the species of *Photopsis* from Wet Mountain Valley, Colordo (8000 feet), with those from Mesilla Valley, N. Mex. (3800 feet), it is remarkable that all of the former (*alcanor*, *glabrella*, *atrata*) have black heads and three submarginal cells, while all the latter (*territus*, *concolor*, *danaus*, *mellipes*) have brown or yellowish heads and two submarginal cells.

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STUDIES AMONG THE FOSSORIAL HYMENOPTERA.—III.

Synopsis of the N. Am. species of the genus Mellinus Fab.

By WILLIAM J. FOX.

MELLINUS Fab.

Mellinus Fab., Ent. Syst. emend. ii, p. 285, 1793; Packard, Proc. Ent. Soc. Phila. vi, p. 418, 1867; Handlirsch, Sitzb. d. k. Akad. d. Wissensch. math.-naturw. classe, xcvi, p. 271.

This genus is easily distinguished by the petiolated abdomen, the recurrent nervures being received by the first and third submarginal cells and the long, lanceolate marginal cell. The body is usually smooth and often gorgeously ornamented. The larvæ, it is said, are fed on Diptera, the imagoes being frequently found in the vicinity of the excrement of cattle, where they prey on the various flies there congregated.* Our species seem to be rare in collections, although the collection of the American Entomological Society contains all the North American species except *M. alpestris* from Mexico.

1. First segment of abdomen red . . . . . 2.
   First segment of abdomen colored otherwise . . . . . 3.
2. Abdomen, except first segment, black, with prominent, yellow markings; first segment strongly nodose at apex; femora more or less reddish . . . . . **rufinodus.**

* See Handlirsch's paper mentioned in the above synonymy; also Cresson, Proc. Ent. Soc. Phila. iv, p. 475.

Abdomen entirely red, sometimes in the ♀, and always in the ♂, with the two or three apical segments black; first abdominal segment not nodose at apex; femora black, the fore and medial pair marked with yellow (sometimes the clypeus entirely, anterior orbits broadly and scape in front, yellow; = *personatus* n. var.). **abdominalis.**

3. Abdomen entirely black, without yellow markings; no yellow on orbits; median tooth of clypeus longest; first abdominal segment slender, strongly nodose at apex and somewhat longer than the hind femora . . . . . **pygmæus.**

Abdomen marked more or less with yellow . . . . . 4.

4. Clypeus, except fore margin in the ♂, metathorax, petiole and second abdominal segment without yellow markings; third abdominal segment with a yellow mark on each side; in the ♂ the scape and first two joints of the flagellum beneath, yellow . . **bimaculatus.**

Clypeus entirely, two marks on basal portion of metathorax, basal half of first abdominal segment and maculations on the second and third segments of abdomen, yellow; ♂ unknown. **alpestris.**

1. **Mellinus rufinodus** Cress.

M. rufinodus Cresson, Proc. Ent. Soc. Phila. iv, p. 475, ♀♂.

Colorado, Montana. Some specimens are much stouter than others, the petiole appearing shorter and broader than usual.

2. **Mellinus abdominalis** Cress.

M. abdominalis Cress., Proc. Ent. Section, Acad. Nat. Sci. Phila. 1881, p. xxxix, ♀♂.

Montana. To several female specimens having the greater part of the head in front yellow I have given the varietal name *personatus*. The males of this species are peculiar for their long, slender abdomen.

3. **Mellinus bimaculatus** Harris.

M. bimaculatus Say MS.

M. bimaculatus Harris, Cat. Ins. Mass. (2d ed.), p. 68, 1835; Packard, Proc. Ent. Soc. Phila. vi, p. 419, ♀.

Maine, New Hampshire. A specimen before me from the latter State was collected at Franconia by Mrs. A. T. Slosson. The ♂ differs from the ♀ by having the anterior margin of the clypeus bordered narrowly with yellow; first three joints of the antennæ yellow beneath and the remaining testaceous; last ventral plate of abdomen broadly and triangularly emarginate.

I have not seen Harris' description of this insect and rely, therefore, on Packard's synonymy. In the first edition of the Catalogue of the Insects of Massachusetts this insect is simply listed and without a description.

4. **Mellinus pygmæus** Handl.
M. pygmæus Handlirsch, l. c. p. 289, pl. ii, fig. 1, ♀♂.
Mexico. Easily distinguished by the paucity of maculations.

5. **Mellinus alpestris** Cam.
M. alpestris Cam., Biol. Centr.-Am. Hym. ii, p. 85, pl. v, fig. 6, ♀.
Mexico. Not seen.

DESCRIPTIONS OF NEW COCCIDÆ.

By T. D. A. COCKERELL.

So far as the material permits, specimens of the species described under the above head will be sent to the U. S. National Museum and coll. American Entomological Society.

1. **Lecanium urichi** n. sp.—Red-brown, very shiny, nearly circular, moderately convex, the segments marked on upper surface by black or blackish transverse lines interrupted at regular intervals. Posterior incision nearly 1 mm. long, with contiguous sides. The two anal plates together forming a practically equilateral diamond-shaped quadrangle. Length 4⅔ mm., breadth 4¼ mm., alt. nearly 2¼ mm.

I found no trace of legs or antennæ after boiling in soda, nor could I detect them by examining the underside of an untreated specimen with a lens. The mouth-parts were distinct, as usual. The lateral incisions are very deep and large, bulbous, with the margin of the bulb thickened and appearing dark brown. This appearance is very different from that in any other *Lecanium* I have seen. Margin with extremely small, but moderately stout spines, fairly numerous. Derm not tessellate, but crowded with very large gland pits, which by transmitted light appear dark brown on a light brown ground.

Hab.—Trinidad, West Indies, in a nest of the ant *Cremastogaster brevispinosa* Mayr. var. sent by Mr. Urich, September, 1893.

I was not able to study this species at the time it was received, and until I made a careful examination of it recently, I did not realize its interesting character. It is the first *Lecanium* known to live in ants' nests, and is, besides, a very peculiar form, perhaps subgenerically distinct from the rest of the genus. Its shape and appearance somewhat recalls *L. begoniæ* Douglas, but it is widely different from that in important characters. It is also apparently the first Coccid found in the nest of any *Cremastogaster*,

the species of that genus being, according to my experience, arboreal.

2. **Eriococcus coccineus** n. sp.—Female oval, shiny, plump, naked, dark crimson (occasionally dull yellow), with short white hairs round the margin. Forms an oval, rather closely-felted white sac, which covers it; in this, in March, the pale orange eggs are laid. Length of ♀, with sac, 3 mm.

Antennæ seven-jointed, 3 longest, then 4, then 2 and 1, then 5, 6, 7 subequal, but of these three, 7 somewhat longest. Formula 34 (12) 7 (56). A false joint slightly indicated in middle of third. Seventh blunt, rounded. Antennæ of nearly uniform width throughout, but slightly tapering distally. Legs well developed, pale brown. Trochanter with a hair; tarsus longer than tibia; sides of body with stout, blunt spines. Mentum apparently three- (certainly two-) jointed. Anal ring with six stout hairs, which extend beyond the tubercles. The other two, if present, are less developed; anal tubercles elongated and very distinct, each bearing a couple of short hairs at its end.

Hab.—Native country uncertain, found on a "Rat-tail Cactus" in a greenhouse at Lincoln, Neb. Sent by Prof. L. Bruner.

This is the first *Eriococcus* found on any of the Cactaceæ, and it will not be difficult to distinguish it from any of the described species. In its 7-jointed antennæ, and tibia shorter than tarsus, it resembles *E. raithbyi* Maskell, found in New Zealand on *Fagus;* but it differs from that insect, as might be expected, in a variety of ways.

The crimson form is typical; the dull yellow mutation may be termed *E. coccineus*, form *lutescens*. *E. raithbyi*, similarly, is sometimes yellow, sometimes red. In *Dactylopius*, some species are always yellowish, while allied but distinct species are always pink.

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